



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Attorney Docket No.: 2267.841US03

Charles W. Extrand

Confirmation No.: 2262

Application No.: 10/662,979

Examiner: Robert W. Hodge

Filed: September 15, 2003

Group Art Unit: 1745

For: FUEL CELL WITH ULTRAPHOBIC SURFACES

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INFORMATION DISCLOSURE STATEMENT

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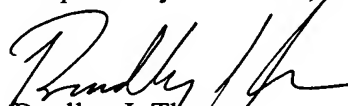
Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Action or Notice of Allowance.

This application was filed after June 30, 2003; therefore, copies of cited U.S. patents and U.S. published applications are not included.

Respectfully submitted,

  
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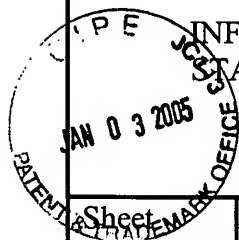
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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
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Complete if Known

Application Number	10/662,979
Filing Date	September 15, 2003
First Named Inventor	Charles W. Extrand
Art Unit	2262
Examiner Name	Robert W. Hodge
Attorney Docket Number	2267.841US03

Sheet 1 of 7

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		Number-Kind Code <sup>2</sup> (if known)		
		US-6,783,882 B2	08/31/2004	Jeffrey A. Schmidt
		US-6,660,363 B1	12/09/2003	Wilhelm Barthlott
		US-6,623,882 B2	09/23/2003	Jefferson Yang
		US-6,605,379 B1	08/12/2003	Robert Angelo Mercuri et al.
		US-6,541,389 B1	04/01/2003	Akira Kubo et al.
		US-6,530,554 B2	03/11/2003	Katsuhide Shimmo et al.
		US-6,518,168 B1	02/11/2003	Paul G. Clem et al.
		US-6,455,021 B1	09/24/2002	Yahachi Saito
		US-6,444,254 B1	09/03/2002	Ashutosh Chilkoti et al.
		US-6,432,866 B1	08/13/2002	Howard Tennent et al.
		US-6,423,372 B1	07/23/2002	Jan Genzer et al.
		US-6,403,388 B1	07/11/2002	Jeffrey D. Birdsley et al.
		US-6,312,303 B1	11/06/2001	Zvi Yaniv et al.
		US-6,299,981 B1	10/09/2001	Marie-Jose Azzopardi et al.
		US-5,900,160	05/04/1999	George M. Whitesides et al.
		US-5,725,788	03/10/1998	George N. Maracas et al.
		US-5,679,460	10/21/1997	Josephus M. Schakenraad et al.
		US-5,674,592	10/07/1997	John C. Clark et al.
		US-5,609,907	03/11/1997	Michael Natan
		US-5,252,835	10/12/1993	Charles M. Leiber et al.
		US-2002/0047822 A1	03/13/2003	Masahiro Hori et al.
		US-2002/0150684 A1	10/17/2002	Ahalapitiya H. Jayatissa
		US-2002/0136683 A1	09/26/2002	Richard E. Smalley et al.
		US-2002/0122765 A1	09/05/2002	Kazunaga Horiuchi et al.
		US-2002/0114949 A1	08/22/2002	Christopher A. Bower et al.
		US-2002/0034879 A1	03/21/2002	Wenbing Yun et al.
		US-2002/0025374 A1	02/28/2002	Yun Hi Lee et al.

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Sheet	2	of	7	Attorney Docket Number	2267.841US03
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### FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)			
		WO 02/084340 A1	10/24/2002	Ming-Hsien Wu et al.	
		WO 01/92179 A1	12/06/2001	Karsten Reihs et al.	
		WO 01/94034 A1	12/13/2001	Dieter Scharnweber et al.	
		WO 00/39368	07/06/2000	Karsten Reihs et al.	
		WO 00/38845	07/06/2000	Karsten Reihs et al.	
		WO 01/79142 A1	10/25/2001	Peter Furniss et al.	
		CA 2356178 A1	07/06/2000	Karsten Reihs et al.	

### NON PATENT LITERATURE DOCUMENTS

EXAMINER INITIAL*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
		DIDEM ÖNER et al., <u>Ultrahydrophobic Surfaces. Effects of Topography Length Scales on Wettability</u> , <i>Langmuir</i> 2000, June 23, 2000, vol. 16, no. 20, pp. 7777-7782	
		ROBERT H. DETTRE et al., <u>Contact Angle Hysteresis II. Contact Angle Measurements on Rough Surfaces</u> , <i>Advances in Chemistry Series</i> , March 22, 1963, pp. 136-144	
		A.B.D. CASSIE et al., <u>Wettability of Porous Surfaces</u> , June 19, 1944, pp. 546-551	
		C. RASCÓN et al., <u>Geometry-dominated fluid adsorption on sculpted solid substrates</u> , <i>Nature</i> , October 26, 2000, vol. 407, pp. 986-989	
		R.G. COX, <u>The spreading of a liquid on a rough surface</u> , <i>J. Fluid Mech.</i> , 1983, vol. 131, pp. 1-26	
		G. MCHALE et al., <u>Analysis of Shape Distortions in Sessile Drops</u> , <i>Langmuir</i> , 2001, vol. 17, pp. 6995-6998	
		A. ESZTERMANN et al., <u>Triple-Point Wetting on Rough Substrates</u> , <i>The American Physical Society</i> , February 4, 2002, vol. 88, no. 5, pp. 55702/1-55702/4	
		S.G. MASON, <u>Wetting and Spreading – Some Effects of Surface Roughness</u> , <i>Academic Press</i> , 1978, pp. 321-326	
		H. KAMUSEWITZ et al., <u>The relation between Young's equilibrium contact angle and the hysteresis on rough paraffin was surfaces</u> , <i>Elsevier Science B.V.</i> , 1999, pp. 271-279	
		J.F. OLIVER et al., <u>Liquid spreading on rough metal surfaces</u> , <i>Journal of Materials Science</i> , 1980, vol. 15, pp. 431-437	
		JAMES E. SMAY et al., <u>Colloidal Inks for Directed Assembly of 3-D Periodic Structures</u> , <i>Langmuir</i> , 2002, vol. 18, pp. 5429-5437	

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		DARRON E. HILL et al., <u>Functionalization of Carbon Nanotubes with Polystyrene</u> , <i>Macromolecules</i> , 2002, vol. 35, pp. 9466-9471			
		ROBERT J. GOOD, <u>A Thermodynamic Derivation of Wenzel's Modification of Young's Equation for Contact Angles; Together with a Theory of Hysteresis</u> , <i>Journal of American Chemical Society</i> , October 20, 1952, vol. 74, pp. 5041-5042			
		ERDAL BAYRAMLI et al., <u>Tensiometric studies on wetting. I. Some effects of surface roughness (theoretical)</u> , <i>Canadian Journal of Chemistry</i> , 1981, vol. 59, pp. 1954-1961			
		S. SEMAL et al., <u>Influence of Surface Roughness on Wetting Dynamics</u> , <i>Langmuir</i> , 1999, vol. 15, pp. 8765-8770			
		J.F. OLIVER et al., <u>The Apparent Contact Angle of Liquids on Finely-Grooved Solid Surfaces-A SEM Study</u> , <i>Gordon and Breach Science Publishers Ltd.</i> , 1977, vol. 8, pp. 223-234			
		A.J.G. ALLAN et al., <u>Wettability of Perfluorocarbon Polymer Films: Effect of Roughness</u> , <i>Journal of Polymer Science</i> , 1959, vol. XXXIX, pp. 1-8			
		J.B. SWEENEY et al., <u>Equilibrium Thin Films on Rough Surfaces. 1. Capillary and Disjoining Effects</u> , <i>Langmuir</i> , 1993, vol. 9, pp. 1551-1555			
		WEI CHEN et al., <u>Ultrahydrophobic and Ultralyophobic Surfaces: Some Comments and Examples</u> , <i>Langmuir</i> , 1999, vol. 15, pp. 3395-3399			
		JEFFREY P. YOUNGBLOOD et al., <u>Ultrahydrophobic Polymer Surfaces Prepared by Simultaneous Ablation of Polypropylene and Sputtering of Poly(tetrafluoroethylene) Using Radio Frequency Plasma</u> , <i>Macromolecules</i> , 1999, vol. 32, pp. 6800-6806			
		JOANNA AIZENBERG et al., <u>Direct Fabrication of Large Micropatterned Single Crystals</u> , <i>SCIENCE</i> , vol. 299, February 21, 2003, pp. 1205-1208			
		J.D. EICK et al., <u>Thermodynamics of Contact Angles</u> , <i>Journal of Colloid and Interface Science</i> , November 1975, vol. 53, no. 2, pp. 235-248			
		F.Y.H. LIN et al., <u>Effect of Surface Roughness on the Dependence of Contact Angles on Drop Size</u> , <i>Journal of Colloid and Interface Science</i> , 1993, vol. 159, pp. 86-59			
		PETER S. SWAIN et al., <u>Contact Angles on Heterogeneous Surfaces: A New Look at Cassie's and Wenzel's Laws</u> , <i>Langmuir</i> , 1998, vol. 14, pp. 6772-6780			
		KIYOHARU TADANAGA et al., <u>Formation Process of Super-Water-Repellent Al<sub>2</sub>O<sub>3</sub> Coating Films with High Transparency by the Sol-Gel Method</u> , <i>Communications of the American Ceramic Society</i> , 1997, vol. 80, no. 12, pp. 3213-3216			
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<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.</p> <p>This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.</p>					

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		KIYOHARU TADANAGA et al., <u>Super-Water-Repellent Al<sub>2</sub>O<sub>3</sub> Coating Films with High Transparency</u> , <i>Communications of the American Ceramic Society</i> , 1997, vol. 80, no. 4, pp. 1040-1042	
		SHUHONG LI et al., <u>Super-Hydrophobicity of Large-Area Honeycomb-Like Aligned Carbon Nanotubes</u> , <i>Journal of Physical Chemistry</i> , 2002, vol. 106, no. 36, pp. 9274-9276	
		J. KIJLSTRA et al., <u>Roughness and topology of ultra-hydrophobic surfaces</u> , <i>Elsevier Science B.V.</i> , 2002, vol. 206, pp. 521-529	
		MASAHIDE TANIGUCHI et al., <u>Effect of Undulations on Surface Energy: A Quantitive Assessment</u> , <i>Langmuir</i> , 2001, vol.17, pp. 4312-4315	
		DAVID QUÉRÉ, <u>Surface Chemistry Fakir droplets</u> , <i>News &amp; Views</i> , 2002, pp. 14-15	
		MASAHIDE TANIGUCHI et al., <u>Correcting for Surface Roughness: Advancing and Receding Contact Angles</u> , <i>Langmuir</i> , 2002, vol. 18, pp. 6465-6467	
		M. THIEME et al., <u>Generation of Ultrahydrophobic Properties of Aluminum – A First Step to Self-cleaning Transparently Coated Metal Surfaces</u> , <i>Advanced Engin. Mater.</i> , Internet, 2001, vol. 9, pp. 1	
		ZEN YOSHIMITSU et al., <u>Effects of Surface Structure on the Hydrophobicity and Sliding Behavior of Water Droplets</u> , <i>Langmuir</i> , 2002, vol. 18, 5818-5822	
		DAVID S. SOANE et al., <i>Fluorsight</i> , Brennan Research Group, January 2003, p. 15	
		J.J. BIKERMAN, <u>Sliding of Drops From Surfaces of Different Roughness</u> , pp. 349-359	
		A.B.D. CASSIE, <u>Contact Angles</u> , <i>Wool Industries Research Association</i> , January 27, 1948, pp. 11-16	
		EUN HEE CIRLIN et al., <u>Roughness and Anisotropy Effects on wettability of Polytetrafluorethylene and Sodium-treated Polytetrafluoroethylene</u> , <i>Journal of Polymer Science</i> , 1973, vol. 11, pp. 785-799	
		PULP AND PAPER RESEARCH INSTITUTE OF CANADA, <u>Liquid Spreading: Edge Effect for Zero Contact Angle</u> , <i>Journal of Colloid and Interface Science</i> , August 1978, vol. 66, no. 1, pp. 200-202	
		ROBERT N. WENZEL, <u>Resistance of Solid Surfaces to Wetting by Water</u> , <i>Industrial and Engineering Chemistry</i> , August 1936, vol. 28, no.8, pp. 988-994	

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		WILL H. COGHILL et al., <u>Why Water Over-Fills a Tumbler</u> , <i>Scientific American Supplement</i> , July 27, 1918, vol. 86, no. 2221, pp. 52-53	
		R.D. SCHULZE et al., <u>Young's equilibrium contact angle on rough solid surfaces. Part I. An empirical determination</u> , <i>J. Adhesion Sci. Technol.</i> , 1989, vol. 3, no. 1, pp. 39-48	
		J.F. OLIVER et al., <u>An Experimental Study of Some Effects of Solid Surface Roughness on Wetting</u> , <i>Colloids and Surfaces</i> , 1980, vol. 1, pp. 79-104	
		KIYOHARU TADANAGA et al., <u>Superhydrophobic-Superhydrophilic Micropatterning on Flowerlike Alumina Coating Film by the Sol-Gel Method</u> , <i>American Chemical Society</i> , 2000, vol. 12, pp. 590-592	
		S. HERMINGHAUS, <u>Roughness-induces non-wetting</u> , <i>Europhysics Letters</i> , October 15, 2000, vol. 52, pp. 165-170	
		J. BICO et al., <u>Rough wetting</u> , <i>Europhysics Letters</i> , July 15, 2001 vol. 55, pp. 214-220	
		RANDY DOYLE HAZLETT, <u>Fractal Applications: Wettability and Contact Angle</u> , <i>Journal of Colloid and Interface Science</i> , July 1990, vol. 137, no. 2, 527-533	
		Y. TAMAI et al., <u>Experimental Study of the Relation between Contact Angle and Surface Roughness</u> , <i>The Journal of Physical Chemistry</i> , 1972, vol. 76, no. 22, pp. 3267-3271	
		J. KIJLSTRA et al., <u>Roughness and topology of ultra-hydrophobic surfaces</u> , <i>Colloids and Surfaces</i> , 2002, vol. 206, pp. 521-529	
		SATOSHI SHIBUICHI et al., <u>Super Water-Repellent Surfaces Resulting from Fractal Structure</u> , <i>J. Phys. Chem.</i> , 1996, vol. 100, pp. 19512-19517	
		J. BICO et al., <u>Pearl drops</u> , <i>Europhysics Letters</i> , July 15, 1999, vol. 47, no. 2, pp. 220-226	
		H. YILDIRIM ERBIL et al., <u>Transformation of a Simple Plastic into a Superhydrophobic Surface</u> , <i>Science</i> , February 28, 2002, vol. 299, pp. 1377-1380	
		J.D. MILLER et al., <u>Effect of Roughness as Determined by Atomic Force Microscopy on the Wetting Properties of PTFE Thin Films*</u> , <i>Polymer Engineering and Science</i> , July 1996, vol. 36, no. 14, pp. 1849-1855	
		ATSUSHI HOZUMI et al., <u>Preparation of ultra water-repellent films by microwave plasma-enhanced CVD</u> , <i>Thin Solid Films</i> , 1997, pp. 222-225	

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		BRIAN D. REISS et al., <u>DNA-Directed Assembly of Anisotropic Nanoparticles on Lithographically Defined Surfaces and in Solution</u> , <i>Materials Research Society</i> , 2001, vol. 635, pp.C6.2.1-C6.2.6			
		F.E. BARTELL et al., <u>Surface Roughness as Related to Hysteresis of Contact Angles. I. The System Paraffin-Water-Air</u> , <i>J. Phys. Chem.</i> , February 1953, vol. 57, pp. 211-215			
		F.E. BARTELL et al., <u>Surface Roughness as Related to Hysteresis of Contact Angles. II. The Systems Paraffin-3 Molar Calcium Chloride Solution-Air and Paraffin-Glycerol-Air<sup>1</sup></u> , <i>J. Phys. Chem.</i> , April 1953, vol. 57, pp. 455-463			
		D. RICHARD et al., <u>Bouncing water drops</u> , <i>Europhysics letters</i> , June 15, 2000, vol. 50, pp. 769-775			
		JUN YANG et al., <u>Microfluid Flow in Circular Microchannel with Electrokinetic Effect and Navier's Slip Condition</u> , <i>Langmuir</i> , 2003, vol. 19, no. 4, pp. 1047-1053			
		NEELESH A. PATANKAR, <u>On the Modeling of Hydrophobic Contact Angles on Rough Surfaces</u> , <i>Langmuir</i> , 2003, vol. 19, no. 4, pp. 1249-1253			
		SUGURU OKUYAMA et al., <u>Periodic Submicrocylinder Diamond Surfaces Using Two-Dimensional Fine Particle Arrays</u> , <i>Langmuir</i> , 2002, vol. 18, no. 22, pp. 8282-8287			
		YOSHIHITO KUNUGI et al., <u>Electro-organic reactions on organic electrodes.</u> , <i>J. Electroanal. Chem.</i> , 1993, vol. 353, pp. 209-215			
		C. HUH <sup>1</sup> et al., <u>Effects of Surface Roughness on Wetting (Theoretical)</u> , <i>Journal of Colloid and Interface Science</i> , June 1, 1977, vol. 60, no. 1, pp. 11-38			
		LETTER TO THE EDITORS, <u>Contact Angles by Scanning Electron Microscopy. Silicone Oil on Polished Aluminum</u> , <i>Journal of Colloid and Interface Science</i> , February 1971, vol. 35, no. 2, pp. 362-364			
		NORMAN R. MORROW, <u>The Effects of Surface Roughness on Contact Angle with Special Reference to Petroleum Recovery</u> , <i>The Journal of Canadian Petroleum</i> , October-December 1975, pp. 42-54			
		PASCALE AUSSILLOUS et al., <u>Liquid Marbles</u> , <i>Nature</i> , June 21, 2001, vol. 411, pp. 924-896			
		WEI JIN et al., <u>Wetting Hysteresis at the Molecular Scale</u> , <i>Physical Review Letters</i> , February 24, 1997, vol. 78, no. 8, pp. 1520-1523			
		H.J. BUSSCHER et al., <u>The Effect of Surface Roughening of Polymers on Measured Contact Angles of Liquids</u> , <i>Colloids and Surfaces</i> , 1984, pp.319-331			
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		R. SHUTTLEWORTH et al., <u>The Spreading of a Liquid Over a Rough Solid</u> , February 23, 1948, pp. 16-22			
		J.F. OLIVER et al., <u>Resistance to Spreading of Liquids by Sharp Edges</u> <sup>1</sup> , <i>Journal of Colloid and Interface Science</i> , May 1977, vol. 59, no. 3, pp. 568-579			
		T. ONDA et al., <u>Super-Water-Repellent Fractal Surfaces</u> , <i>The ACS Journal of Surfaces and Colloids</i> , May 1, 1996, vol. 12, no. 9, pp. 2125-2127			
		PHILLIP G. WAPNER et al., <u>Partial Wetting Phenomena on Nonplanar Surfaces and in Shaped Microchannels</u> , <i>Langmuir</i> , 2002, vol. 18, no. 4, pp. 1225-1230			
		JOONWON KIM et al., <u>Nanostructured Surfaces for Dramatic Reduction of Flow Resistance in Droplet-Based Microfluidics</u> , 2002, pp. 479-482			
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